Growing Oilseed Sunflowers

Field Selection

Sunflowers grown for oil have black hulls, and have three groupings based on their oil profile: traditional, mid-oleic (NuSun), and high oleic (HO). Sunflowers grow best on loamy, silty loam and clay soils with good drainage, but have a lower to medium tolerance to salinity. Choose fields that are free of herbicide residual carryover, notably *Lontrel* and *Pursuit*. Avoid fields that have had significant sclerotinia infection within the last five years. Avoid fields with heavy weed pressure, and plan on a pre-seed herbicide. Oilseed sunflower production is focused on yield, and less concerned with seed sizing.

Seeding

Date and Temperature

Sow sunflowers before June 1, as soil temperatures warm above 6°C. Sunflowers typically emerge 12 to 16 days later. If seeding window becomes late, consider switching to earlier hybrids since sunflowers can take ~125 days to reach R9 maturity. Seedlings are relatively tolerant to light frosts up to V4 (4-leaf stage), but injury risk increases as more leaves are added.

Rate, Depth and Spacing

Target seeding rate for oil-type sunflowers between 20,000 to 22,000 plants per acre. Oilseed sunflowers can be planted or solid-seeded. Recommended row spacing is 10 to 15 in. on solid-seeded stands. Plant populations should remain the same as stated above, regardless of row spacing, since sunflowers compensate for chages in plant population through changes in seed and head size. At 15 and 30 in. row spacing and 22,000 plants/acre target, seeds should be 19 and 9.5 in. apart, respectively. Sunflowers must be placed into, or on top of, moisture, but no deeper than 3 in., ideally 1.5 – 2 in.. Ensure good seed-to-soil contact and a firm row closure. Seed can safely sit in dry soil for several weeks prior to germinating.

Crop Nutrition

Sunflowers are highly sensitive to seed-placed fertilizer injury. Best emergence results from banding fertilizer 2 in. below and 2 in. beside the seed. Phosphate (P_2O_5) and potassium (K) should be side-banded to the sunflower row, along with some, or all, of the nitrogen. Nitrogen may be banded between the rows after planting up to V8.

Sunflower Nutrient Uptake and General Fertilizer Recommendations

Nutrient	Nutrient Uptake @ 2000 lbs/acre	General Fertility Recommendation
N	67 – 82 lbs/acre	Lower applied N rates than other crops, similar to oats. Apply 60 to 90 lbs actual N/acre up to the V8 stage.
P_2O_5	23 – 28 lbs/acre	Apply phosphate at 30 to 40 lbs/acre, banded 2 in. beside and below the seedrow.
K_2O	33 – 41 lbs/acre	Apply potassium at 15 to 30 lbs/acre in a sideband and 30 to 60 lbs/acre, if broadcast.
S	8 – 9 lbs/acre	A test may be required on some soils to determine sulphur status. Apply sulphate at 20 lbs/acre on well-drained soils.

Visit www.gov.mb.ca/agriculture/crops/crop-management/sunflowers.html for more detail.

Pest Management

Insects

Many insects can reduce sunflower yields, but only some build up enough to cause economic damage. Oilseed types are not as prone to quality losses from insect damage as confectionary sunflowers. Cutworms can be damaging early in the year, and can dramatically reduce crop stands, if not controlled. Banded sunflower moth, Lygus bugs and seed weevils can damage newly-forming seeds. Economic thresholds for weevils are 10-12 adults per oilseed plant, scouting to start at R5.1 bloom stage.

Weeds

Sunflowers are uncompetitive early in the season, but can quickly shade out weeds after canopy closure occurs. Control weeds via a combination of beginning with a clean field, using a pre-emergent herbicide, in-crop application and/or inter-row tillage before V6 leaf stage. Weeds should be removed within the first month of crop growth to minimize yield losses. Oilseed sunflowers are generally *Express* (tribenuron)-tolerant or Clearfield-tolerant hybrids.

Diseases

Sclerotinia is a serious disease of sunflowers in Manitoba in wetter years, particularly if wet, humid conditions persist at harvest, leading to head or stalk rot. Follow an extended crop rotation between sclerotinia susceptible crops, especially if there was significant infection in the previous four years. Downy mildew, phoma, rust, and verticillium wilt also affect sunflowers. Fungicide efficacy is limited in sunflowers. Lengthy rotations are most effective in reducing incidence.

Harvest

Timing and Desiccation

Frost is necessary for drying unless using a desiccant, usually making sunflowers the last crop to be harvested. Harvest as soon as possible once mature (R9, back of head is banana-yellow and bract tips turning brown) to limit bird damage and head rot/shatter loss.

Combining

Harvest when seed moisture is below 18 to 20%. Allowing sunflowers to dry to 9.5 to 12% reduces the need for on farm drying. Sunflowers can shatter if heads are very dry with high winds or late sclerotinia head rot, and combine speed must be slowed. For best results use sunflower pans mounted on a traditional straight-cut header, or an all-crop header. Using the largest concave openings and the slowest rotor speeds will reduce seed damage.

Drying

Oil-type sunflowers can be artificially dried at 71 to 104ºC (160-220°F). Sunflower seed should be cooled before storage as even sunflowers at 8.5% moisture will spoil if warm. Use caution when harvesting and drying, sunflower oil and dust is very flammable – ensure equipment is kept free of debris, blown clean, in good repair and monitored regularly.

Contact Us

This fact sheet was developed by the Manitoba Agriculture Oilseed Specialist.

For more information, contact the department.

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